



General

Guideline Title

Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma.

Bibliographic Source(s)

Diercks DB, Mehrotra A, Nazarian DJ, Promes SB, Decker WW, Fesmire FM, American College of Emergency Physicians. Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma. *Ann Emerg Med*. 2011 Apr;57(4):387-404. [38 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American College of Emergency Physicians. Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma. *Ann Emerg Med* 2004 Feb;43(2):278-90.

Clinical policies are scheduled for revision every 3 years; however, interim reviews are conducted when technology or the practice environment changes significantly.

Recommendations

Major Recommendations

Definitions for the strength of evidence (Class I-III) and strength of recommendations (A-C) are repeated at the end of the Major Recommendations.

1. In a hemodynamically unstable patient with blunt abdominal trauma is bedside ultrasound the diagnostic modality of choice?

Level A recommendations. None specified.

Level B recommendations. In hemodynamically unstable patients (systolic blood pressure ≤ 90 mm Hg) with blunt abdominal trauma, bedside ultrasound, when available, should be the initial diagnostic modality performed to identify the need for emergent laparotomy.

Level C recommendations. None specified.

2. Does oral contrast improve the diagnostic performance of computed tomography (CT) in blunt abdominal trauma?

Level A recommendations. None specified.

Level B recommendations. Oral contrast is not required in the diagnostic imaging for evaluation of blunt abdominal trauma.*

*All of the studies reviewed included the use of intravenous (IV) contrast.

Level C recommendations. For patients with a negative CT scan result with IV contrast only, in whom there is high suspicion of bowel injury, further evaluation or close follow-up is indicated.

3. In a clinically stable patient with isolated blunt abdominal trauma, is it safe to discharge the patient after a negative abdominal CT scan result?

Level A recommendations. None specified.

Level B recommendations. Clinically stable patients with isolated blunt abdominal trauma can be safely discharged after a negative result for abdominal CT with IV contrast (with or without oral contrast).

Level C recommendations. Further observation, close follow-up, and/or imaging may be warranted in select patients based on clinical judgment.

4. In patients with isolated blunt abdominal trauma, are there clinical predictors that allow the clinician to identify patients at low risk for adverse outcome who do not need an abdominal CT?

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Patients with isolated abdominal trauma, for whom occult abdominal injury is being considered, are at low risk for adverse outcome and may not need abdominal CT scanning if the following are absent: abdominal tenderness, hypotension, altered mental status (Glasgow Coma Scale score <14), costal margin tenderness, abnormal chest radiograph, hematocrit <30% and hematuria.*

*Hematuria is defined variably in different studies, with the lowest threshold being greater than or equal to 25 red blood cells (RBCs)/high-power field (HPF).

Definitions:

Strength of Evidence

Literature Classification Schema*

Design/Class	Therapy†	Diagnosis‡	Prognosis§
1	Randomized, controlled trial or meta-analyses of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)

*Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

†Objective is to measure therapeutic efficacy comparing interventions.

‡Objective is to determine the sensitivity and specificity of diagnostic tests.

§Objective is to predict outcome, including mortality and morbidity.

Approach to Downgrading Strength of Evidence*

	Design/Class		
Downgrading	1	2	3
None	I	II	III
1 level	II	III	X

2 levels	Design/Class	X	X
Downgrading	X	X	X

*See "Description of Methods Used to Analyze the Evidence" field for more information.

Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all of the issues)

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies)

Level C recommendations. Other strategies for patient management that are based on Class III studies, or in the absence of any published literature, based on panel consensus

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication bias, among others, might lead to such a downgrading of recommendations.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Acute blunt abdominal trauma

Guideline Category

Diagnosis

Evaluation

Clinical Specialty

Emergency Medicine

Internal Medicine

Radiology

Intended Users

Physicians

Guideline Objective(s)

- To update the 2004 clinical policy on the critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma
- To address the following critical questions:
 - In a hemodynamically unstable patient with blunt abdominal trauma is bedside ultrasound the diagnostic modality of choice?
 - Does oral contrast improve the diagnostic performance of computed tomography (CT) in blunt abdominal trauma?
 - In a clinically stable patient with isolated blunt abdominal trauma, is it safe to discharge the patient after a negative abdominal CT scan result?
 - In patients with isolated blunt abdominal trauma, are there clinical predictors that allow the clinician to identify patients at low risk for adverse outcome who do not need an abdominal CT?

Target Population

Nonpregnant adult patients presenting to the emergency department with acute blunt abdominal trauma

Note: This guideline is not intended to address the care of pediatric patients or pregnant women.

Interventions and Practices Considered

Diagnosis/Evaluation

1. Bedside ultrasound
2. Computed tomography (CT) with and without contrast (oral/intravenous)
3. Clinical indicators for CT scanning
4. Discharge criteria for clinically stable patients
5. Further observation as clinically indicated

Major Outcomes Considered

Sensitivity, specificity, and prognostic value of diagnostic tests

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Multiple searches of MEDLINE and the Cochrane database were performed. All searches were limited to English-language sources, human studies, and adults. Specific key words/phrases and years used in the searches are identified under each critical question (see original guideline document). In addition, relevant articles from the bibliographies of included studies and more recent articles identified by committee members or peer reviewers were included.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Strength of Evidence

Literature Classification Schema*

Design/Class	Therapy†	Diagnosis‡	Prognosis§
1	Randomized, controlled trial or meta-analyses of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)	Case series Case report Other (e.g., consensus, review)

*Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

†Objective is to measure therapeutic efficacy comparing interventions.

‡Objective is to determine the sensitivity and specificity of diagnostic tests.

§Objective is to predict outcome, including mortality and morbidity.

Approach to Downgrading Strength of Evidence*

	Design/Class		
Downgrading	1	2	3
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

*See "Description of Methods Used to Analyze the Evidence" field for more information.

Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

All articles used in the formulation of this clinical policy were graded by at least 2 subcommittee members for strength of evidence and classified by the subcommittee members into 3 classes of evidence on the basis of the design of the study, with design 1 representing the strongest evidence and design 3 representing the weakest evidence for therapeutic, diagnostic, and prognostic clinical reports, respectively (see the "Rating Scheme for the Strength of the Evidence" field). Articles were then graded on 6 dimensions thought to be most relevant to the development of a clinical guideline: blinded versus non-blinded outcome assessment, blinded or randomized allocation, direct or indirect outcome measures (reliability and validity), biases (e.g., selection, detection, transfer), external validity (i.e., generalizability), and sufficient sample size. Articles received a final grade (Class I,

II, III) on the basis of a predetermined formula, taking into account design and quality of study (see "Rating Scheme for the Strength of the Evidence" field). Articles with fatal flaws were given an "X" grade and not used in formulating recommendations in this policy. Evidence grading was done with respect to the specific data being extracted and the specific critical question being reviewed. Thus, the level of evidence for any one study may vary according to the question, and it is possible for a single article to receive different levels of grading as different critical questions are answered. Question-specific level of evidence grading may be found in the Evidentiary Table included at the end of the original guideline document.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy development process, including expert review, and is based on the existing literature; where literature was not available, consensus of emergency physicians was used.

Rating Scheme for the Strength of the Recommendations

Clinical findings and strength of recommendations regarding patient management were made according to the following criteria:

Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all of the issues)

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies)

Level C recommendations. Other strategies for patient management that are based on Class III studies, or in the absence of any published literature, based on panel consensus.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication bias, among others, might lead to such a downgrading of recommendations.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Expert review comments were received from individual physicians in the fields of emergency medicine, surgery, and radiology and from individual members of the American College of Surgeons Committee on Trauma, the Society for Academic Emergency Medicine, American College of Emergency Physicians (ACEP) Emergency Medical Services Committee, ACEP's Emergency Ultrasound Section, ACEP's Quality and Performance Committee, and ACEP's Trauma and Injury Prevention Section. Their responses were used to further refine and enhance this policy; however, their responses do not imply endorsement of this clinical policy.

This clinical policy was approved by the ACEP Board of Directors, January 13, 2011.

Supported by the Emergency Nurses Association, February 16, 2011

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Appropriate evaluation and management of adult patients presenting to the emergency department (ED) with acute blunt abdominal trauma
- Accurate identification of injury for safe and appropriate disposition of patients with acute blunt abdominal trauma
- Ultrasound can be performed rapidly at bedside, is inexpensive, has no known associated risks, and can identify free fluid in blunt abdominal trauma patients.
- Computed tomography (CT) is very sensitive and specific for solid-organ blunt abdominal trauma injuries and can be performed without oral contrast.

Potential Harms

- Both false-positive and false-negative findings on diagnostic tests bear the risk of severe complications.
- Bedside ultrasonography has limitations. Ultrasound is able to identify the presence of free fluid but not the etiology of the fluid, or more specifically, the injury. There must be a minimum volume of fluid present before the fluid can be detected by ultrasound. In addition, fluid takes time to accumulate, so it is possible that an initial bedside ultrasound result may be negative, but if the examination is repeated later, the test result may be positive. Hence, serial ultrasounds can be helpful in patients with blunt abdominal trauma. Ultrasound should not be considered the sole test for evaluating patients with blunt abdominal trauma. A negative ultrasound result in hemodynamically unstable patients does not preclude the need for further diagnostic testing. In addition, diagnostic accuracy of bedside ultrasound may vary depending on ultrasonographer skill and equipment.
- Computed tomography (CT) is expensive, time consuming, requires that the unstable patient leave the resuscitation room to be transported to the radiology suite and exposes the patient to risk of complications from ionizing radiation and contrast-induced nephropathy. Routine CT scanning of patients with blunt abdominal trauma carries potential risks of exposure to unnecessary radiation, increased cost, prolonged evaluation time, and increased resource utilization.

Qualifying Statements

Qualifying Statements

- Policy statements and clinical policies are the official policies of the American College of Emergency Physicians (ACEP) and, as such, are not subject to the same peer review process as articles appearing in the print journal. Policy statements and clinical policies of ACEP do not necessarily reflect the policies and beliefs of *Annals of Emergency Medicine* and its editors.
- This policy is not intended to be a complete manual on the evaluation and management of adult patients with acute blunt abdominal trauma but rather a focused examination of critical issues that have particular relevance to the current practice of emergency medicine.
- Recommendations offered in this policy are not intended to represent the only diagnostic and management options that the emergency physician should consider. The American College of Emergency Physicians (ACEP) clearly recognizes the importance of the individual physician's judgment. Rather, this guideline defines for the physician those strategies for which medical literature exists to provide support for answers to the crucial questions addressed in this policy.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Mobile Device Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Safety

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2004 Feb (revised 2011 Apr)

Guideline Developer(s)

Source(s) of Funding

American College of Emergency Physicians

Guideline Committee

American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Critical Issues in the Evaluation of Adult Patients Presenting to the Emergency Department with Acute Blunt Abdominal Trauma

American College of Emergency Physicians Clinical Policies Committee (Oversight Committee)

Composition of Group That Authored the Guideline

Members of the American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Critical Issues in the Evaluation of Adult Patients Presenting to the Emergency Department with Acute Blunt Abdominal Trauma: Deborah B. Diercks, MD, MSc (*Subcommittee Chair*); Abhishek Mehrotra, MD; Devorah J. Nazarian, MD; Susan B. Promes, MD; Wyatt W. Decker, MD (*Committee Co-Chair*); Francis M. Fesmire, MD (*Committee Co-Chair*)

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Financial Disclosures/Conflicts of Interest

Relevant industry relationships: There were no relevant industry relationships disclosed by the subcommittee or committee members.

Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

Guideline Endorser(s)

Emergency Nurses Association - Professional Association

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: American College of Emergency Physicians. Clinical policy: critical issues in the evaluation of adult patients presenting to the emergency department with acute blunt abdominal trauma. *Ann Emerg Med* 2004 Feb;43(2):278-90.

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Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the [American College of Emergency Physicians \(ACEP\) Web site](#)

ACEP clinical policies are available for mobile applications at the [ACEP Web site](#) .

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on April 21, 2004. The information was verified by the guideline developer on May 27, 2004. This NGC summary was updated by ECRI Institute on August 4, 2011. The information was verified by the guideline developer on September 1, 2011.

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